Without nonumber command(not best method)

Here, the derivative of a complex function is calculated. The equation is broken at logical points, with each term of the derivative aligned on separate lines.

$$\frac{d}{dx}\left(x^4\sin(x^2) - \frac{1}{x^2+1} + \ln(x)\right) = 4x^3\sin(x^2) + 2x^5\cos(x^2) + \tag{1}$$

$$\frac{2x}{(x^2+1)^2} + \frac{1}{x} \tag{2}$$

With nonumber command

Here, the derivative of a complex function is calculated. The equation is broken at logical points, with each term of the derivative aligned on separate lines.

$$\frac{d}{dx}\left(x^4\sin(x^2) - \frac{1}{x^2+1} + \ln(x)\right) = 4x^3\sin(x^2) + 2x^5\cos(x^2) + \frac{2x}{(x^2+1)^2} + \frac{1}{x} \tag{3}$$

Multivariable Integral

This example demonstrates a multivariable integral over a domain DD. The integral is split into two parts, each computed over different intervals,

$$\int\int_D (x^2+y^2)\,dx\,dy = \int_0^1 \int_0^{\sqrt{1-y^2}} (x^2+y^2)\,dx\,dy + \int_1^2 \int_0^{\sqrt{4-y^2}} (x^2+y^2)\,dx\,dy \tag{4}$$

Advanced Derivative with Trigonometric Functions

Here, a derivative of a function involving both polynomial and trigonometric terms.

$$f(x) = \sin(x) + \cos(x) + \tan(x) + \sec(x) + \csc(x) + \arcsin(x) + \arccos(x) + \arctan(x) \tag{5}$$

$$\frac{d}{dx}\left(x^3\cos(x^2) + \frac{\tan(x)}{x}\right) = 3x^2\cos(x^2) - 2x^4\sin(x^2) + \frac{\sec^2(x)}{x} - \frac{\tan(x)}{x^2} \tag{6}$$